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*** YOU HAVE NEW MAIL ***

=> s fullerene and soccer ball shap?
L1 22 FULLERENE AND SOCCER BALL SHAP?

=> s l1 and transfection (3a) DNA
L2 0 L1 AND TRANSFECTION (3A) DNA

=> s l1 and DNA
L3 0 L1 AND DNA

=> s fullerene and transfection (5a) DNA
L4 9 FULLERENE AND TRANSFECTION (5A) DNA

=> dup rem l4
PROCESSING COMPLETED FOR L4
L5 9 DUP REM L4 (0 DUPLICATES REMOVED)

=> d l5 bib abs 1-9

L5 ANSWER 1 OF 9 USPATFULL on STN
AN 2003:257441 USPATFULL
TI Use of buckysome or carbon nanotube for drug delivery
IN Hirsch, Andreas, Rathsborg, GERMANY, FEDERAL REPUBLIC OF
Sagman, Uri, Toronto, CANADA
Wilson, Stephen R., Houston, TX, UNITED STATES
PI US 2003180491 A1 20030925
AI US 2003-367646 A1 20030214 (10)
PRAI US 2002-356856P 20020214 (60)
DT Utility
FS APPLICATION
LREP Raymund F. Eich, Ph.D., Williams, Morgan & Amerson, P.C., Suite 1100,
10333 Richmond, Houston, TX, 77042
CLMN Number of Claims: 44
ECL Exemplary Claim: 1
DRWN 8 Drawing Page(s)
LN.CNT 1526
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

09567863

AB Compositions and methods for administering a therapeutic agent to a mammal are disclosed. The compositions comprise either (i) vesicles comprising an amphiphilic substituted **fullerene**, wherein the therapeutic agent is present in the vesicle interior or between layers of the vesicle wall, (ii) a substituted **fullerene**, comprising a **fullerene** core and a functional moiety, wherein the therapeutic agent is associated with the substituted **fullerene**, or (iii) carbon nanotubes, wherein the therapeutic agent is covalently bonded to the carbon nanotubes.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 2 OF 9 CAPLUS COPYRIGHT 2003 ACS on STN
AN 2003:220620 CAPLUS
DN 138:363267
TI Water soluble **fullerene** as genetic vector
AU Isobe, Hiroyuki; Nakamura, Eiichi
CS Graduate School of Science, University of Tokyo, Japan
SO Kobunshi (2003), 52(3), 142
CODEN: KOBUA3; ISSN: 0454-1138
PB Kobunshi Gakkai
DT Journal; General Review
LA Japanese
AB A review. Development of **fullerene** mols. with two arm moieties that were complementary and electrostatically-interacting structure to DNA mols. and the use of **fullerene** deriv. as genetic vector were described. Some evidences showing DNA adduct formation of the **fullerene** deriv. obsd. by at. force microcopy and transfection into culture cells were presented. Transfection efficiency of the **fullerene** system comparative to the conventional methods was discussed.

L5 ANSWER 3 OF 9 CAPLUS COPYRIGHT 2003 ACS on STN
AN 2002:233093 CAPLUS
DN 136:263081
TI Preparation of aminohydroxyfullerene and aminoepoxyfullerene derivatives as reagents for DNA compaction
IN Nakamura, Eiichi; Isobe, Hiroyuki; Tomita, Naoki
PA Fujisawa Pharmaceutical Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 12 pp.
CODEN: JKXXAF
DT Patent
LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002088075	A2	20020327	JP 2000-272114	20000907
PRAI	JP 2000-272114		20000907		
OS	MARPAT 136:263081				
GI					

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB The title compds. [I and II; R1 , R2 = (un)substituted hydrocarblyl or NR1R2 = (un)substituted N-contg. heterocycllyl], which have excellent amphipathic property and are used for **transfection** of cells by compaction of **DNA**, are prepd. Thus, a soln. of 100 mg **fullerene** and 48 .mu.L N-methylpiperazine in 50 mL chlorobenzene was irradiated by a W incandescent lamp with stirring to give 99% I (NR1R2

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= N-methylpierzino). Plasmid DNA (pGreen lantern, 5040 bp), 4.0 mM aminoepoxyfullerene deriv., and NIH 3T3 cells were incubated for 6 h. An expression efficiency for fluorescent protein (GFP) was 0.003%.

L5 ANSWER 4 OF 9 CAPLUS COPYRIGHT 2003 ACS on STN
AN 2002:118551 CAPLUS
DN 137:164150
TI Gene operating **fullerene**
AU Isobe, Hiroyuki
CS Graduate School of Science, Department of Chemistry, University of Tokyo, Japan
SO Kagaku (Kyoto, Japan) (2002), 57(2), 33-34
CODEN: KAKYAU; ISSN: 0451-1964
PB Kagaku Dojin
DT Journal; General Review
LA Japanese
AB A review. The use of water-sol. **fullerene** derivs. as DNA vectors was described. The author designed the **fullerene** deriv. with two arms of cationic amines through which the mol. bound to two phosphate residues of the double stranded DNA. The **fullerene** mol. had very low DNA-cleaving activity and had the action to co-ppt. the bound DNA to form DNA aggregates. The ability of the **fullerene** deriv. to introduce transgene to the target cells was discussed.

L5 ANSWER 5 OF 9 CAPLUS COPYRIGHT 2003 ACS on STN
AN 2001:902293 CAPLUS
DN 136:294749
TI Synthesis and transfection capability of multi-functionalized **fullerene** polyamine
AU Isobe, Hiroyuki; Tomita, Naoki; Jinno, Shigeki; Okayama, Hiroto; Nakamura, Eiichi
CS Department of Chemistry, Graduate School of Science, The University of Tokyo, Tokyo, 113-0033, Japan
SO Chemistry Letters (2001), (12), 1214-1215
CODEN: CMLTAG; ISSN: 0366-7022
PB Chemical Society of Japan
DT Journal
LA English
AB A new **fullerene** transfection reagent bearing multiple-functional groups has been synthesized by diastereoselective double cycloaddn. reaction. The highly oxygenated reagent transfers extracellular DNA into mammalian cells with an efficiency comparable to that of a nor-analog.

RE.CNT 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 6 OF 9 CAPLUS COPYRIGHT 2003 ACS on STN
AN 2002:579895 CAPLUS
DN 138:67130
TI Small molecules change gene shape
AU Nakamura, Eiichi
CS Graduate School of Science, University of Tokyo, Japan
SO Gendai no Takumi ga Tsukuru Mirai Busshitsu, [Daigaku to Kagaku Kokai Shinpojumu], 15th, Japan, 2001 (2001), 128-139 Publisher: Kubapuro, Tokyo, Japan.
CODEN: 69CYEL; ISBN: 4-87805-005-5
DT Conference; General Review
LA Japanese
AB A review. Chem. of fullerenes in their interaction with DNA and their use as genetic vectors were discussed. The efficient synthesis of the fullerenes and their derivs. for developing the DNA carriers with amphipathic natures were described. Structural anal. of **fullerene** C60 mols. interacted with a DNA strand was discussed and the practical

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application of the **DNA-fullerene** complex to the **DNA transfection** into the monkey kidney cells was presented.

L5 ANSWER 7 OF 9 CAPLUS COPYRIGHT 2003 ACS on STN
AN 2000:894324 CAPLUS
DN 135:71840
TI Functionalized **fullerene** as an artificial vector for transfection
AU Nakamura, Eiichi; Isobe, Hiroyuki; Tomita, Naoki; Sawamura, Masaya; Jinno, Shigeki; Okayama, Hiroto
CS Department of Chemistry, The University of Tokyo, Tokyo, 113-0033, Japan
SO Angewandte Chemie, International Edition (2000), 39(23), 4254-4257
CODEN: ACIEF5; ISSN: 1433-7851
PB Wiley-VCH Verlag GmbH
DT Journal
LA English
AB The authors synthesized a two-handed **fullerene** tetramine as well as various related compds. The affinities of these reagents for DNA duplexes were probed. The authors report that the two-handed **fullerene** tetramine is unique among other fullerenes in its ability to bind to duplex DNA in a reversible manner. Use of the derived **fullerene** as an artificial vector for transfection is described.
RE.CNT 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 8 OF 9 USPATFULL on STN
AN 95:101121 USPATFULL
TI Method for introducing a biological substance into a target
IN Fitzpatrick-McElligott, Sandra G., Media, PA, United States
Lavin, John G., Swarthmore, PA, United States
Rivard, Germain F., Philadelphia, PA, United States
Subramoney, Shekhar, Hockessin, DE, United States
PA E. I. Du Pont de Nemours and Company, Wilmington, DE, United States
(U.S. corporation)
PI US 5466587 19951114
AI US 1994-315309 19940929 (8)
RLI Continuation of Ser. No. US 1993-85696, filed on 30 Jun 1993, now abandoned
DT Utility
FS Granted
EXNAM Primary Examiner: Stone, Jacqueline M.; Assistant Examiner: Campbell, Bruce
CLMN Number of Claims: 3
ECL Exemplary Claim: 1
DRWN 9 Drawing Figure(s); 9 Drawing Page(s)
LN.CNT 910
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB A method for introducing a biological substance into a target which utilizes particles having a substantially pure carbonaceous surface to which is associated a biological substance wherein the particles are sufficiently small to penetrate the target without killing the target is described.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 9 OF 9 WPIDS COPYRIGHT 2003 THOMSON DERWENT on STN
AN 1994-026193 [03] WPIDS
DNC C1994-012129
TI Substrate, esp. for cell culture, coated with **full rene** - which induces membrane damage when cells are exposed to light and oxygen , e.g. to facilitate **transfection** with **DNA**.

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DC A96 B04 D16

IN GIBSON, U J; RICHMOND, R C

PA (DART-N) DARTMOUTH COLLEGE

CYC 19

PI WO 9400552 A1 19940106 (199403)* EN 53p

RW: AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE

W: CA JP

US 5310669 A 19940510 (199418) 17p

ADT WO 9400552 A1 WO 1993-US5680 19930614; US 5310669 A US 1992-901911
19920622

PRAI US 1992-901911 19920622

AN 1994-026193 [03] WPIDS

AB WO 9400552 A UPAB: 19940303

Substrates comprising a **fullerene** (I)-coated surface with a substance (II) attached to this surface are new. Also new are (1) cell culture substrates with a (I)-coated surface; (2) cell cultures grown on these substrates, and (3) a solvent for removal of cells and tissues from substrates consisting of acidified sulpholane.

USE/ADVANTAGE - Cells grown on these surfaces can be exposed to eight in presence of O₂ to increase the permeability of their membranes, i.e. to facilitate introduction of e.g. DNA, RNA, transfecting protein or drug, pref. applied to the cell before illumination. The cells can also be used to study interactions with cytokines, growth hormones, etc.

Dwg.0/9

ABEQ US 5310669 A UPAB: 19940622

Substrate comprises a **fullerene**-coated surface with a biological substance attached to the **fullerene**-coated surface.\$

Also claimed is a cell culture substrate comprising the **fullerene**.

USE Used for growing cells, increasing cell membrane permeability and introducing DNA, RNA and vectors into cells.

Dwg.0/9

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